**THIS OPINION WAS NOT WRITTEN FOR PUBLICATION**

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte DAVID S. SUMIDA and DENNIS C. JONES

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Appeal No. 95-4470
Application No. 08/223,190[1]

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ON BRIEF

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Before THOMAS, HAIRSTON and KRASS, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on appeal from the final rejection of claims 1 through 3, 10 and 17 through 22, all of the claims remaining in the application.

The invention is directed to a monolithic multifunctional optical element. More particularly, the optical element has a body made of a material with a refractive index greater than

[1] Application for patent filed April 5, 1994.

1.414 and wherein the body is formed in the shape of a porro prism to provide for retroreflection in one plane and polarization rotation of incident light rays. Such a construction is said to provide for 100% reflectivity of incident light rays and for a geometric rotation of the plane of polarization of light rays which is independent of whether the reflections are totally internally reflecting or not.

Representative independent claim 1 is reproduced as follows:

1. A monolithic optical element comprising:

a body comprising a material having a refractive index greater than 1.414 to provide for total internal reflection of incident light, and wherein the body is formed in the shape of a right-angle porro prism to provide for retroreflection in one plane and polarization rotation of the incident light rays.

The examiner relies on the following references:

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| Crow | 3,924,201 | Dec. 2, 1975 |
| Simmons | 4,525,034 | Jun. 25, 1985 |
| Reeder | 4,740,986 | Apr. 26, 1988 |
| Sumida | 5,303,256 | Apr. 12, 1994 (filed Mar. 12, 1993) |

In addition, the examiner relies on appellants' admitted prior art Figure 4 [APA].

Claims 1 through 3 and 10 stand rejected under 35 U.S.C. 103 as unpatentable over Sumida, Simmons and Crow. In a new ground

of rejection entered in the answer, claims 17 through 22 now stand rejected under 35 U.S.C. 103, the examiner citing APA in view of Sumida and Simmons regarding claims 17 through 19 and 22, adding Crow to this combination with regard to claims 20 and 21.

Reference is made to the briefs and answer for the respective positions of appellants and the examiner.

## OPINION

We will not sustain any of the rejections as it is our view that the examiner has failed to establish a prima facie case of obviousness with regard to the claimed subject matter.

Turning first to the rejection of claims 1 through 3 and 10, the examiner contends that Sumida discloses the subject matter of claim 1, including a suggestion of a monolithic structure, but for the optical element being in the shape of a right-angle porro prism. Simmons and Crow are cited to show different forms and shapes of optical elements, viz, porro prisms, and the examiner concludes that it would have been obvious to substitute the optical structure of the optical element in Simmons and Crow to the device of Sumida to achieve “a monolithic optical element,” as claimed.

Sumida, cited as prior art in the background section of the instant specification, does not disclose a "monolithic optical element," as claimed. Although the examiner relies on the abstract of Sumida, wherein "a single solid-state optical element" and "[t]he optical element is a monolithic ... multifunctional element" are recited, it is clear from his patent specification that Sumida provides only for a "quasi-monolithic saturable optical element" [see, for example, column 1, lines 8-9 and column 2, lines 11-12 of Sumida]. Moreover, Sumida is very explicit, at column 3, lines 62-65:

> The term "quasi-monolithic" is used since the optical element **10** of the present invention is not a single piece, or truly monolithic.

Thus, it is clear that Sumida merely represents the prior art over which appellants seek improvement in providing for a single, monolithic optical element.

Appellants also argue, and we agree, that none of the cited references disclose or suggest the claimed "polarization rotation" which is so important to the claimed invention.

The examiner's response is to contend that this argument goes to limitations not appearing in claim 1 and, therefore, the examiner "gives no patentable weight to the 'polarization rotation' feature" [answer-page 10]. If the limitation, indeed,

did not appear in the claim, we would agree with the examiner and we might understand how the examiner might have misconstrued the claim language since claim 1 appearing in the appendix to the principal brief recited "polarization" but not "polarization rotation." However, the term "polarization rotation" was clearly inadvertently omitted from the claim appearing in the appendix as this term has formed part of the language of claim 1 since the filing of the application. Since the examiner's rejection of claim 1, and claims depending thereon, is bottomed on no limitation of "polarization rotation" appearing in the claims, we cannot understand why the examiner has persisted in this rejection even after this inadvertent omission of the claim language was explained in the reply brief.

Since the examiner has ignored, or, more accurately, has failed to give any weight to a claim limitation, especially a limitation so clearly tied to a critical aspect of appellants' invention, the examiner's rejection of claims 1 through 3 and 10 under 35 U.S.C. 103 must fail for a lack of a prima facie showing of obviousness of the claimed subject matter.

Even though we could agree that porro prisms are well known in the art and that "polarization rotation" is a well known term of art, the examiner has failed to present a convincing line of

reasoning as to why it would have been obvious, in view of the art cited, to have constructed a monolithic optical element providing for total internal reflection of incident light wherein the body of the optical element is in the shape of a right-angle porro prism in order to provide for retroreflection in one plane and polarization rotation of the incident light rays. The claimed properties have not been shown to be inherent in any porro prism.

We note, further, that the examiner appears to rely, to some extent, on Reeder for a suggestion of the "polarization rotation" feature. However, where a reference is relied on to support a rejection, whether or not in a minor capacity, there would appear to be no excuse for not positively including the reference in the statement of the rejection. In re Hoch, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970). Reeder forms no part of the examiner's statement of the rejection and, accordingly, we have not considered this reference.

We now turn to the new ground of rejection wherein the examiner rejects claims 17 through 19 and 22 under 35 U.S.C. 103 over APA, Sumida and Simmons.

To whatever extent the examiner might have mistakenly believed that the "polarization rotation" limitation did not

appear in claim 1, this limitation is clearly part of independent claim 17. However, the examiner still has not satisfactorily explained why this limitation is taught or suggested by the combination of applied references. Accordingly, for this reason, alone, we will not sustain the rejection of claim 17 or of the claims dependent thereon.[2]

Again, to whatever extent the examiner appears to rely on Reeder [page 11 of the answer] for providing for "polarization rotation," this reference forms no part of the statement of rejection and we will not consider it.

We further note that while the examiner appears to rely on Simmons for the claimed "retroreflection" of the incident light rays, appellants have submitted a declaration with the reply brief attesting to running an experiment based on Simmons' disclosed invention and that the experimental results show that Simmons' claim of retroreflectivity is inaccurate because only part of the beam is reflected. The examiner has never refuted this evidence.

[2] We note that Crow, applied with regard to the rejection of dependent claims 20 and 21, does not provide for the deficiency of the other applied references as Crow also does not teach or suggest the claimed "polarization rotation."

The examiner's decision rejecting claims 1 through 3, 10 and 17 through 22 under 35 U.S.C. 103 is reversed.

**REVERSED**

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| JAMES D. THOMAS<br>Administrative Patent Judge | ) |
| KENNETH W. HAIRSTON<br>Administrative Patent Judge | ) BOARD OF PATENT APPEALS AND INTERFERENCES |
| ERROL A. KRASS<br>Administrative Patent Judge | ) |

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